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ABSTRACT

Three studies compared 3-year-olds' ability to attribute fact beliefs and value beliefs to another person when these beliefs differed from the children's. Value beliefs concerned the tastes and smells of substances, and whether stimuli were pretty or not. Numbers of subjects involved in the three studies were 32, 16, and 20. The consistent finding in all three studies was that young 3-year-olds performed very poorly on fact-belief tasks but fairly well on value-belief tasks. The difference in performance held when several different kinds of fact and value tasks were compared and when the two types of tasks were closely equated on other task variables. Children's poor performance on the fact-belief tasks was striking in view of all the help they were given, but their good performance on the value-belief tasks seemed even more remarkable. Subjects may have interpreted the value-belief questions as requests for information about the other person's desires, or likes and dislikes, with respect to the target object. Findings suggest that children may acquire at a very early age the notion that people differ in their opinions about things. (RH)

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Young Children's Understanding of Fact Beliefs Versus Value Beliefs

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Young Children's Understanding of Fact Beliefs Versus Value Beliefs

Adults appear to use a folk or commonsense psychological theory in their efforts to understand and predict people's mental states and behaviors (e.g., Astington, Harris, & Olson, 1988; Churchland, 1986; Wellman, in press). A fundamental tenet of this theory is that beliefs and other mental states may differ between people and may fail to accord with reality. Thus, for example, adults understand that one person's belief concerning some state of affairs may differ from another person's, and that one or both of those beliefs could be false.

A number of researchers have recently been investigating the development of this and other components of our commonsense theory of mind (Astington et al., 1988). The concept of false belief has been of particular interest to these investigators. This is true both because of its central role in this commonsense theory and because the results of most studies suggest that, in contrast to 4- and 5-year-olds, 3-year-olds tend to find the concept surprisingly difficult to understand (Astington et al., 1988; Gopnik & Astington, 1988; Johnson & Maratsos, 1977; Moses & Flavell, 1988; Perner, Leekam, & Wimmer, 1987; Wimmer & Perner, 1983; for a more optimistic view of their understanding of false belief, see Bartsch & Wellman, in press; Wellman, in preparation; Wellman & Bartsch, 1988). A recent study by Moses and Flavell (1988) shows how impoverished young children's understanding of false belief can appear to be. In this study, 3-year-olds were shown different versions of short videotapes in which an actor acquired a false belief by virtue of not having had perceptual access to a critical event. This is a variation on a well-known false-belief task devised by Wimmer and Perner (1983). In one version, designed to make it very easy for children to infer a false belief, a girl named Cathy discovered some crayons in a bag. Then, leaving the bag of crayons on the table, she left the room, announcing that she was going to get some paper to draw on. While she was gone, a clown entered the room, hid the crayons in a drawer, and put rocks in the bag instead. Cathy then returned with the drawing paper, made directly for the bag, opened it, looked astonished, and exclaimed, "Hey, there are *rocks* in here!" The experimenter remarked on Cathy's surprise, rewound the tape back to the point where Cathy was just about to look in the bag, and asked whether at that moment, back then, Cathy thought there were going to be crayons or rocks in the bag. Despite all these clues to Cathy's belief, 63% of the subjects answered "rocks" (what they knew was there) rather than "crayons" (what Cathy erroneously believed was there). The percentage of incorrect responses was even higher (75-87%) in the other, somewhat less facilitating versions of the false-belief task used in this study.

Research on children's understanding of false belief has focussed exclusively on matters of physical fact. However, people's belief or belief-like mental states vary on a rough "fact" to "value" dimension (Mansfield & Clinchy, 1985; Stevenson, 1963). At the "fact" end are beliefs about matters of physical fact that are clearly either true or false. For example, when in Moses and Flavell's study (1988) Cathy thinks there are crayons in the bag and the child subject thinks there are rocks in it, it is a matter of demonstrable fact that Cathy's belief is false and the child's belief is true. Toward the "value" end of the dimension is an assortment of belief or belief-like states that have no clear and unequivocal truth or falsity; rather, we would tend to characterize them as matters of personal value, taste, preference, or opinion, rather than as matters of hard, cold fact. To illustrate, what if, instead of differing about the contents of the bag, Cathy thought that a certain food was delicious-tasting, a certain liquid unpleasant-smelling, and a certain picture pretty, whereas the child subject believed them to have the opposite qualities? In this

case we would hesitate to say that one person's belief was true and the other person's false, even after tasting, smelling, and looking at the objects ourselves. The appropriate verdict would be that there is no disputing tastes, rather than that one person's conviction was factually correct and the other's factually incorrect. There are also belief or belief-like states that fall at intermediate points on this dimension (Baier, 1958). For example, if two people disagreed as to which of two cars was the better buy, there would be much objective evidence to evaluate. In the end, experts might decide that one belief was clearly mistaken and the other clearly correct, given all the facts about the two cars, or they might have to decide that the two people's different wants and needs regarding cars make it another case of *de gustibus non disputandum*. Similarly, people disagree on the extent to which moral positions should be regarded as matters of personal opinion or cultural prescription versus matters of fact and reason, and therefore subject to judgments of truth and falsity.

Beliefs from the "value-belief" end of the dimension share properties both with "fact beliefs" and with desires and preferences. To illustrate, Cathy's fact belief that there are crayons in the bag expresses a claim about the nature of the external world more obviously than it expresses a claim about the nature of her mental state. Her fact belief directs one's attention outward, toward the world, rather than inward, toward her mental state. In contrast, her desire and preference for a certain food directs one's attention in the opposite direction. That is, it expresses a claim about her mental state more obviously than it expresses a claim about the nature of the food. Finally, her value belief that the food is delicious seems to be intermediate in these respects between fact belief and desire or preference. That is, it both expresses a claim about the nature of the food, namely, that *it* is delicious, and also conveys information about her mental state, namely, that *she* desires or prefers it. Thus, it is at least roughly accurate to say that fact beliefs mainly direct one's attention to the physical world, desires and preferences to the mental world, and value beliefs to both. Similarly, fact beliefs can be thought of as either true or false, desires and preferences as neither true nor false, and value beliefs as (in a way) "true" from the perspective of those who hold them and "false" from the perspective of those who do not.

As already indicated, there is much evidence that 3-year-olds often have difficulty crediting another person with a "fact belief" that differs from their own. What about belief or belief-like states from the "value belief" end of the dimension? Although there are some marginally relevant studies (e.g., Astington & Gopnik, 1989; Mansfield & Clinchy, 1985), there appears to be no direct evidence concerning the relative difficulty for young children of attributing to another person a fact belief different from their own versus a value belief different from their own. However, there are at least three reasons why value-belief tasks might prove to be easier for them. First, I have just argued that thinking of value beliefs may direct our attention to the mental state of the believer more than thinking of fact beliefs does. If the same were true for young children, it might make value-belief tasks easier than fact-belief tasks. The reason is that, in order to understand that another person's belief might be different from one's own, one must realize that "belief" refers to a mental state, which *can* vary from person to person, rather than to the external world, which remains fixed. Thus, when young children are presented with a choice of value beliefs to attribute to another person, they may more readily understand that it is the other person's mental state that is being asked for. Second, the mental states that value beliefs call attention to are desires and preferences, and these may be states about which young children are relatively more knowledgeable. In support of this possibility, several theorists have recently argued that children probably acquire a rudimentary

understanding of desire earlier than they acquire a rudimentary understanding of fact belief (Flavell, 1988; Forguson & Gopnik, 1988; Perner, 1988; Wellman, 1988, in preparation). Indeed, Wellman and Woolley (1988) have provided some experimental evidence for their hypothesis that children first acquire an elementary "desire psychology" and only later an elementary "belief-desire psychology" (see also Wellman, in preparation). Third, discrepant fact beliefs can seem like profound disagreements about what object is actually present (e.g., crayons or rocks), whereas discrepant value beliefs sound like less profound disagreements about what the object that is present is like (e.g., delicious or not). It may be harder for young children to attribute to another person a more divergent-seeming fact belief than a less divergent-seeming value belief. In summary, there are three reasons why 3-year-olds might find it easier to attribute value beliefs than fact beliefs to another person when these beliefs differ from their own: first, thinking about value beliefs may more readily direct attention to the believer's mental states; second, these mental states are ones they already know something about -- namely, desires and preferences; and third, the different beliefs may seem less different in the value case.

To test for such differences, Eleanor Flavell, Frances Green, Louis Moses, and I recently carried out three studies in which we directly compared 3-year-olds' ability to attribute to another person fact beliefs versus value beliefs, when these fact and value beliefs differed from the children's own. The value beliefs variously concerned how substances tasted and smelled, and whether stimuli were pretty or not. Two experimenters participated in each study.

The subjects in Study 1 were 32 "young" 3-year-olds (mean = 3-3 years; range = 2-11 to 3-7 years). Each child was given a block of two fact-belief tasks either followed or preceded by a block of two value-belief tasks (order of blocks was counterbalanced). In both types of tasks the clues to the other person's beliefs were abundant and clear. In one of the fact-belief tasks, one experimenter presented a full milk carton and asked the other experimenter ("Ellie") if she were thirsty. Ellie said she was and left the room to get a glass. While she was gone the first experimenter took all the milk out of the carton, carefully explaining to the child what she was doing. Ellie then returned, glass in hand, and proceeded to show clear behavioral evidence of a fact belief different from the child's: that is, she said "I'm thirsty," licked her lips in anticipation, and reached for the milk carton. The first experimenter said "Wait a minute, Ellie" to stay her hand, and then whispered the following test questions to the child: first "Do *you know* the milk is all gone from that carton?" and then "Does *Ellie know* the milk is all gone from that carton?" followed or preceded in counterbalanced order by, first "Do *you think* there is milk inside that carton?" and then "Does *Ellie think* there is milk inside that carton?" In the other fact-belief task, after failing to find any candy in a candy box Ellie acted as if she believed there wasn't any candy there (the belief was false, because there actually was some hidden in a secret compartment in the box).

One of the value-belief tasks began with the child selecting his or her favorite cookie from a choice of three. The first experimenter also took a bite, agreed that it was delicious, and then offered a piece to Ellie. Ellie took a bite and immediately gave clear behavioral evidence for a value belief different from the child's: that is, she shook her head as if to say "no," frowned, puckered her mouth, returned the piece to its plate, covered it with another plate, pushed it away, and turned her back on it. This time the two pairs of questions were: "Did you like that cookie?" and "Did Ellie like that cookie?" followed or preceded by "Do you think it is a yummy-tasting cookie?" and "Does Ellie think it is a yummy-tasting cookie?" In the other

value-belief task, she behaved as if she liked the smell of a liquid that the child and the first experimenter had agreed was unpleasant-smelling.

Insert Table 1 about here

The results of the study are shown in the first row of Table 1. The children were significantly (p <.001) better at attributing a peculiar value belief than a false fact belief to the second experimenter, even though the evidence for both beliefs was very strong and salient. Previous theory (e.g., Flavell, 1988) and research (e.g., Hogrefe, Wimmer, & Perner, 1986) led us to believe that the "know" and "like" questions might be significantly easier than their "think" counterparts. They did not prove to be significantly easier, however.

I will summarize the other two studies more briefly, because they yielded results very similar to those of Study 1. In Study 2 we did two things to make the fact-belief and value-belief tasks more comparable. First, we told the subjects, rather than asked them, what the second experimenter knew (in the fact tasks) and liked (in the value tasks) before asking what she believed. Since it could be argued that what she liked was more self- evident from her behavior than what she knew, we thought that supplying both pieces of information would make the fact-value comparison fairer. Second, we further equated the tasks by asking about yummy- versus yucky-tasting foods in both types of belief questions. The subjects were 16 "young" 3-year-olds (mean = 3-1 years, range = 2-11 to 3-5 years). To illustrate the procedure, in one of the two fact-belief tasks a delicious food (cake) that Ellie had tasted was replaced in her absence with what was described as a bad-tasting food (cat food) and the bad-tasting food was covered with a dish cloth. It was emphasized to the child that he or she and the first experimenter knew what was under the cloth but that Ellie did not know. Ellie then returned to the room and indicated that she wanted to eat the covered food, and then the child was first asked about his or her own fact belief about what was under the cover, and then asked about Ellie's: "What do *you think* (does *Ellie think*) is under here? Do *you think* (does *Ellie think*) there is yummy-tasting cake or yucky-tasting cat food under here?" The procedure was quite similar in the two value-belief tasks, except that there was no deception. In one, for example, it was made clear that Ellie, unlike the child and the first experimenter, actually liked the taste of extremely salty orange juice. The value-belief questions then were: "What do *you think* (does *Ellie think*) about this orange juice? Do *you think* (does *she think*) it is yummy-tasting or yucky-tasting?"

As Table 1 shows, the results of Study 2 were very similar to those of Study 1. As in Study 1, young 3-year-olds proved to be significantly (p <.001) better at attributing value beliefs that differed from their own than they were at attributing fact beliefs that differed from their own.

In Study 3 we made several changes to further equate fact-belief and value-belief tasks. One was to try to make both types of tasks very easy -- and equally so -- by eliminating their inferential demands. We did this by having Ellie actually *say* what she believed on each task just before the child was asked what she believed; thus, the child had only to echo what Ellie had just said in order to be correct. Another change was to have Ellie give no affective or behavioral clues to her beliefs on either task. There were two value-belief tasks, conducted roughly as follows. After the child and the first experimenter said that they thought a certain stimulus was

pretty, Ellie perversely said she thought it was not pretty (or vice-versa). Then, after repeating his or her own belief, the child was asked what Ellie believed. On the two fact-belief tasks, the child could see a stimulus that Ellie could not now see and had not previously seen. Ellie said she thought that the hidden stimulus had a property different from that which was visible to the child -- for example, that it was a white cup rather than a blue one. (What Ellie expressed here was, strictly speaking, a wrong guess rather than a false belief born of deception, inasmuch as she had not previously seen a cup of either color in the hiding place.) Following this, the child was asked first for his or her own belief and then for Ellie's, as in the value-belief tasks. The subjects in this study were 20 "young" 3-year-olds (mean = 3-2 years, range = 2-10 to 3-6 years).

The results of Study 3 are shown at the bottom of Table 1. Again, the children performed significantly ($p < .02$) better on the value-belief tasks than on the fact-belief tasks.

In conclusion, then, the consistent finding in all three studies was that young 3-year-olds perform very poorly on fact-belief tasks but fairly well on value-belief tasks. This difference in performance held when several different kinds of fact and value tasks were compared and when the two types of tasks were closely equated on other task variables. Whether it would continue to hold if still other kinds of tasks were compared is of course an open question. The children's poor performance on the fact-belief tasks was striking in view of all the help they were given -- for example, the second experimenter actually *telling* them what she believed in Study 3. This result is consistent with most previous studies, however, and suggests that young 3-year-olds may have less understanding of fact beliefs than Wellman and Bartsch (1988; Wellman, in preparation) have given them credit for. The children's good performance on the value-belief tasks seemed even more remarkable to us than their poor performance on the fact-belief tasks. It was surprising to see children this young correctly attributing to another person beliefs very different from their own about how things tasted, smelled, and looked. In contrast to our fact-belief results, these results are more consistent with Wellman and Bartsch's charitable view of what 3-year-olds know about the mind. Why did the children find the value-belief tasks easier than the fact-belief ones? Perhaps for the reasons given earlier. In particular, we think they may have spontaneously interpreted the value-belief questions as requesting the other person's desires or likes-dislikes with respect to the target object, rather than requesting her mental model or representation of it. That is, the children may have construed them more as desire questions than as belief questions, even though they clearly were worded as belief questions. If, as many of us think, children of this age understand desires better than beliefs, then interpreting them as desire questions could certainly have made them easier. The finding in Study 1 that 3-year-olds could easily answer questions about whether Ellie liked or disliked the stimulus lends support to this possibility. Perhaps the basic notion that people can and do differ in their opinions about things is acquired very early.

References

Astington, J.W., & Gopnik, A. (1989). *Developing understanding of desire and intention.* Paper presented in the symposium on *The Emergence of Mindreading: Evolution, Development and Simulation of Second Order Representations*, University of St. Andrews, St. Andrews, Scotland, April.

Astington, J. W., Harris, P. L., & Olson, D. R. (Eds.). (1988). *Developing theories of mind.* New York: Cambridge University Press.

Baier, K. (1958). *The moral point of view.* Ithaca, NY: Cornell University Press.

Bartsch, K., & Wellman, H. M. (in press). Young children's attribution of action to beliefs and desires. *Child Development.*

Churchland, P. M. (1986). *Matter and consciousness.* Cambridge, MA: MIT Press.

Flavell, J. H. (1988). The development of children's knowledge about the mind: From cognitive connections to mental representations. In J. W. Astington, P. L. Harris, & D. R. Olson (Eds.), *Developing theories of mind* (pp. 244-267). New York: Cambridge University Press.

Forguson, L., & Gopnik, A. (1988). The ontogeny of common sense. In J. W. Astington, P. L. Harris, & D. R. Olson (Eds.), *Developing theories of mind* (pp. 226-243). New York: Cambridge University Press.

Gopnik, A., & Astington, J. (1988). Children's understanding of representational change and its relation to the understanding of false belief and the appearance-reality distinction. *Child Development, 59,* 26-37.

Hogrefe, G. J., Wimmer, H., & Perner, J. (1986). Ignorance versus false belief: A developmental lag in attribution of epistemic states. *Child Development, 57,* 567-582.

Johnson, C. N., & Maratsos, M. P. (1977). Early comprehension of mental verbs: Think and know. *Child Development, 48,* 1743-1747.

Mansfield, A., & Clinchy, B. (1985). *The early growth of multiplism in the child.* Paper presented at the Fifteenth Annual Symposium of the Jean Piaget Society, Philadelphia, June.

Moses, L. J., & Flavell, J. H. (1988). *Inferring false beliefs from actions and reactions.* Unpublished manuscript.

Perner, J. (1988). Developing semantics for theories of mind: From propositional attitudes to mental representation. In J. W. Astington, P. L. Harris, & D. R. Olson (Eds.), *Developing theories of mind* (pp. 141-172). New York: Cambridge University Press.

Perner, J., Leekam, S. R., & Wimmer, H. (1987). Three-year-old's difficulty with false belief: The case for a conceptual deficit. *British Journal of Developmental Psychology, 5,* 125-137.

Stevenson, C. L. (1963). *Facts and values: Studies in ethical analysis.* New Haven: Yale University Press.

Wellman, H. M. (1988). First steps in the child's theorizing about the mind. In J. W. Astington, P. L. Harris, & D. R. Olson (Eds.), *Developing theories of mind* (pp. 64-92). New York: Cambridge University Press.

Wellman, H. M. (in preparation). *Children's theories of mind.* Cambridge, MA: Bradford Books/MIT Press.

Wellman, H. M., & Bartsch, K. (1988). Young children's reasoning about beliefs. *Cognition, 30,* 239-277.

Wellman, H. M., & Woolley, J. D. (1988). *From desires to beliefs: The early development of everyday psychology*. Unpublished manuscript.

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13*, 103-128.

Table 1

Percent Correct Attribution to Another Person of Beliefs Different from the Child's Own

Study	Type of Belief	
	Fact	Value
1	39	75
2	22	66
3	35	63